

**CLAIMS**

What is claimed is:

- 1           1.     A medical appliance for placement within a portion of  
2 the anatomy of a patient, the appliance comprising:  
3                 a scaffolding, the scaffolding configured to define a  
4                 substantially cylindrical member having a distal end and a  
5                 proximal end and extending longitudinally there between,  
6                 forming a lumen there through, along the longitudinal extension  
7                 of the appliance the scaffolding having an interior and an  
8                 exterior surface comprising struts with geometrical patterns  
9                 formed by angles, wherein the angles determine the relative  
10                flexibility of the medical appliance such that the appliance  
11                conforms to the topography of a target lumen and when  
12                pressure is exerted along varying points of the longitudinal  
13                extension of the appliance, the appliance does not undesirably  
14                foreshorten or elongate.
- 1           2.     The medical appliance of claim 2, wherein the scaffolding  
2 further comprises a coating coupled with the scaffolding such that  
3 both the struts and the area between the struts are coated, the  
4 coating of sufficient thickness to prevent galvanic current.
- 1           3.     The medical appliance of claim 2, wherein a portion the  
2 medical appliance is covered with a polymeric material.
- 1           4.     The medical appliance of claim 3, wherein only the ends  
2 of the medical appliance are covered.

1           5.     The medical appliance of claim 3, wherein the cover is  
2 applied to the lumen of the medical appliance.

1           6.     The medical appliance of claim 5, wherein the cover is  
2 substantially hydrophobic.

1           7.     The medical appliance of claim 5, wherein the cover is  
2 substantially hydrophilic.

1           8.     The medical appliance of claim 6, wherein the coating is  
2 hydroscopic.

1           9.     The medical appliance of claim 7, wherein the coating is  
2 substantially hydroscopic.

1           10.    The medical appliance of claim 1, wherein at least one  
2 strut defines an aperture there through.

1           11.    The medical appliance of claim 10, wherein the at least  
2 one aperture defines an eyelet of sufficient diameter to receive  
3 suture.

1           12.    The medical appliance of claim 11, wherein the eyelet  
2 diameter is at least 300 $\mu$ m.

1           13.    The medical appliance of claim 5, wherein the cover  
2 does not inhibit flexing or radial expansion of the medical appliance.

1           14.    The medical appliance of claim 13, wherein the cover  
2 adheres completely to contours of the stent struts.

1           15.    The medical appliance of claim 14, wherein the cover  
2 does not adhere to contours of the stent struts.

1           16.    The medical appliance of claim 1, wherein the dimensions  
2 of the scaffolding geometry determine torsionality of the medical  
3 appliance.

1           17.    The medical appliance of claim 1, wherein the scaffolding  
2 is formed of a memory capable alloy.

1           18.    The medical appliance of claim 17, wherein the  
2 scaffolding is electropolished.

1           19.    The medical appliance of claim 1, wherein along the  
2 longitudinal expanse of the scaffolding the medical appliance further  
3 comprise a plurality of flanges that define apertures there through.

1           20.    The medical appliance of claim 1, further comprising a  
2 connector coupled with portions of the geometrical patterns, the  
3 connector comprising a crossing member and a plurality of leg  
4 members extending from the crossing member.

1           21.    The medical appliance of claim 20, wherein the  
2 connector further comprises a rectangular detent extending from a  
3 leg thereof.

1           22.    The medical appliance of claim 20, wherein the length of  
2 the leg members and the degree of the angle at which the legs  
3 extend from the crossing member determines the relative flexibility of  
4 the medical appliance.

1           23.    The medical appliance of claim 21, wherein the angle at  
2 which the leg members extend from the crossing member is greater  
3 than 90°.

1           24.    The medical appliance of claim 23, wherein the medical  
2   appliance is relatively rigid.

1           25.    The medical appliance of claim 23, wherein the angle at  
2   which the leg members extend from the crossing member is 90° or less.

1           26.    The medical appliance of claim 24, wherein the medical  
2   appliance is relatively flexible.

1           27.    A method of covering a medical appliance, comprising  
2   the steps of:

3                   providing a mold having an internal and an external  
4   diameter;

5                   providing a medical appliance comprising a scaffolding,  
6   the scaffolding configured to define a substantially cylindrical  
7   member having a distal end and a proximal end and extending  
8   longitudinally there between, forming a lumen there through,  
9   along the longitudinal extension of the appliance the  
10   scaffolding having an interior and an exterior surface with  
11   geometrical patterns formed by angles, wherein the angles  
12   determine the relative flexibility of the medical appliance such  
13   that the appliance conforms to the topography of a target  
14   lumen and when pressure is exerted along varying points of the  
15   longitudinal extension of the appliance, the appliance does not  
16   undesirably foreshorten or elongate;

17                  inserting the medical appliance into the internal  
18   diameter of the mold;

19                  applying a polymer to the interior surface of the medical  
20   appliance; and

21                    annealing the polymer to the stent by applying heat to  
22                    the polymer.

- 1                    28.    The method of claim 27, further comprising the step of
- 2                    applying a polymer to the exterior surface of the medical appliance.